

Attachment


M

Don Carlson

09/13/2004 09:08 AM

To: "Chris Wilson" <chris@agresources.com>

cc:

Subject: Re: Proposed Equus Beds regs 

Thanks for your comments Chris.

I am not familiar with the recent research conducted through a grant from the Kansas Department of Commerce. Could you direct as to how to locate a copy of this research?

Donald R. Carlson, P.E.

Kansas Department of Health and Environment

Bureau of Water - Industrial Program Section

Suite 420

1000 SW Jackson

Topeka, KS 66612-1367

785-296-5547

785-296-0086 Fax

dcarlson@kdhe.state.ks.us

"Chris Wilson" <chris@agresources.com>



"Chris Wilson"

<chris@agresources.com>

09/10/04 04:04 PM

To: "Don Carlson" <dcarlson@kdhe.state.ks.us>

cc:

Subject: Proposed Equus Beds regs

Submitted by the Kansas Building Industry Association
September 10, 2004

To Don Carlson

Regarding the proposed regulations for municipal, commercial and industrial water users over the Equus Beds

Kansas Building Industry Association (KBIA) represents over 2000 companies in the residential building industry in Kansas. We respectfully offer concerns with regards to the proposed regulations. We recommend that synthetic liners not be required. Research by Kansas State University and very recent research conducted through a grant by the Kansas Department of Commerce indicates that soil liners are self-sealing. KBIA submits that soil liners should provide adequate protection, even over the Equus Beds and that greater flexibility should be allowed in the regulations for soil liners. Synthetic liners are not a guarantee from leakage.

We also believe that soil liners should not require monitoring wells. We do support testing upon closure.

Submitted by Chris Wilson, KBIA Executive Director
212 SW 8th Avenue, Suite 201
Topeka, KS 66603
785/456-9705



"Carlson, James"
<jcarlson@sunflower.net>

09/10/04 02:47 PM

To: "Don Carlson (dcarlson@kdhe.state.ks.us)"
<dcarlson@kdhe.state.ks.us>
cc: "Wayne Penrod (wepenrod@sunflower.net)"
<wepenrod@sunflower.net>, Jeff Evans <jevans@wcrf.com>, Mark
Calcara GB <mcalcara@wcrf.com>, "Weber, John"
<jweber@sunflower.net>, "Heiser, Dave" <dheiser@sunflower.net>
Subject: Sunflower Comments on Wastewaste Lagoon Regulations

Don -

Attached is an electronic version of our comments on the Proposed Wastewater Lagoon Regulations. We will be forwarding a hard copy via Federal Express to arrive on Monday, September 13. Sunflower appreciates the opportunity to comment on these regulations and the working relationship we have with the Department. Please contact me if you have questions or comments at 620.272.5467.

Sincerely,

James Carlson



Sunflower Electric Power Corporation Lagoon_Regulations_Final_WEP_JRC_JE.pdf

September 10, 2004

Kansas Department of Health and Environment
Bureau of Water
1000 SW Jackson, Suite 420
Topeka, Kansas 66612-1367

Re: Comments on Proposed Administrative Regulations K.A.R. 28-16-160 through 28-16-174
Municipal, Commercial and Industrial Wastewater Lagoon Requirements

Attention: Mr. Donald Carlson, P.E.

Dear Mr. Carlson,

Enclosed please find the comments of Sunflower Electric Power Corporation on the proposed Municipal, Commercial and Industrial Wastewater Lagoon Requirements, K.A.R. 28-16-160 through 28-16-174. To facilitate review, this submittal first presents the proposed regulation, followed by comments or issues we have identified with the proposed version. Where applicable, we have proposed alternative solutions or language for consideration by KDHE.

Introduction -

Sunflower is a non-profit, non-stock membership corporation operated cooperatively, organized under the laws of the State of Kansas. Sunflower holds appropriate certificates of convenience and authority granted by the Kansas Corporation Commission (KCC) authorizing it to transact the business of an electric public utility and it was incorporated with powers in general to generate, purchase, transmit, distribute, and sell electric power and energy at wholesale for resale to its members and, in general, with power to do all things necessary, useful, and appropriate to accomplish such purposes.

Sunflower is a borrower of the United States Department of Agriculture acting through the Rural Utilities Service ("RUS"), and as such is regulated by RUS, and as to all principal matters otherwise is within the jurisdiction of the Federal Energy Regulatory Commission ("FERC"). It serves all the electrical needs of 6 member retail cooperative systems who, in turn, serve approximately 150,000 people located in the western one-third of Kansas.

General Comments –

Sunflower supports the Kansas Department of Health and Environment (KDHE) in its effort to strike a balance between concerns of Environmental Groups, needs of Kansas businesses, statutory requirements of the legislature, and protection of the environment. We support the concept of requiring appropriate, reasonable and consistent lining standards for surface impoundments that pose an environmental threat to groundwater of the State. We do not support the wholesale application of regulations to innocuous wastewaters or lining requirements in geographically-diverse areas devoid of groundwater, nor do we support requirements for mandated construction techniques absent the establishment of technical flexibility that may be applied in site-specific or low-risk conditions.

K.A.R. 28-16-161(f)(1,2) Municipal and Commercial Lagoons, General Provisions

“The following general provisions shall apply to municipal and commercial wastewater treatment system lagoons:

(h) Municipal and commercial wastewater treatment system lagoons in existence on the effective date of this regulation shall not be required to be modified or retrofitted to comply with the provisions of this regulation, unless either of the following occurs:

(1) The secretary determines that environmental or public health threats result from the operation of the lagoon, or data exists showing the actual or potential soil or water pollution.

(2) The modification, replacement, or expansion of a municipal or commercial wastewater lagoon results in the lagoon being dewatered, and the secretary orders the implementation of specific lagoon improvements to address conditions that result in noncompliance with statutory, regulatory, or permit requirements or that fail to ensure protection of public health or the environment.”

Sunflower Comment No. 1 –

As proposed, provision 28-16-161 (f)(1) would allow KDHE to order lagoon modifications based on the *potential* to pollute - as opposed to an actual occurrence of soil or water pollution or observed impacts on human health and the environment. We do not dispute the need for regulation to protect from actual events of water or soil contamination; we believe, however it to be unreasonable, even in the very important matter of the potential to pollute the environment, to allow KDHE the authority to order repairs without evaluation of the risks, materials or other factors surrounding regard such an occurrence.

Sunflower Comment No. 2 –

Typically a grandfather clause allows *existing* facilities to continue operation absent reconstruction or pollution of the environment. These regulations, as proposed, are retroactive because facilities which may historically have impacted the environment but which now are operated in a sound manner may be captured in a “non-compliance” scenario. We believe that existing facilities must be allowed to continue operation under the *historical* conditions of their permit unless their useful life is exhausted, application is made to KDHE for reconstruction or expansion, or an actual release occurs, resulting in soil or water pollution. This allows owners and operators of impoundments certainty in environmental design and operational compliance. By contrast, these regulations place at risk all existing facilities that may be environmentally sound but which do not possess all of the requirements contained in the regulation. We believe that existing facility exemption should be just that – one that allows existing facilities to continue operation unless a release to the soil and ground water occurs, thus indicating operational insufficiency to protect the environment. One compromise to protect the environment might be to require existing facilities to install monitoring systems under the provisions of proposed regulation KAR 28-16-172 – “Monitoring Wells,” which would allow for assessment of a facilities’ adequacy to protect the environment.

K.A.R. 28-16-161(g) Municipal and Commercial Lagoons, General Provisions

(g) “No person shall construct, operate, or maintain any municipal or commercial wastewater lagoon without obtaining a permit or permit modification from the department.”

Sunflower Comment –

As proposed, KAR 28-16-161(g) would give the KDHE authority to issue “Construction Permits,” which is different from its historical role of issuing “Discharge Permits.” It is important to note that, if promulgated as written, State oversight would occur *earlier* in the project process, e.g., affording review and input during “Construction Permitting.” This injects the KDHE earlier into the project process, placing it in a role of design review, project planning review, material approvals, etc., giving the State review authority over additional elements earlier in the project. Because projects are by their nature time dependant, and if KDHE wishes to have codified Construction Permitting authority, it will be important to place time constraints on the review process so the regulated community may have certainty in project planning, budget management, and the other time-related elements associated with the project process. Thus, if KDHE wishes to provide construction oversight, then it must be time-accountable from a regulatory perspective to complete reviews in mandated, timely manner. We are recommending a 30-day turnaround time be built into the regulations allowing for design et.al review.

K.A.R. 28-16-162(f)(5)(C, D) Industrial Lagoons, General Provisions

Industrial lagoons: general provisions. The following general provisions shall apply to industrial wastewater treatment system lagoons:

f) "For each new or modified industrial wastewater lagoon, the permittee may utilize a soil liner if the maximum soil liner seepage rate is less than 1/4 inch per day and the wastewater lagoons or ponds utilized for the containment or treatment of process-generated wastewater are limited to the following."

(5)(C) the total dissolved solids and salt concentrations of the cooling water in the ponds do not exceed criteria that would prohibit the cooling water from being discharged in conformance with Kansas surface water quality standards as specified in K.A.R. 28-16-28b, 28-16-28c, 28-16-28d, and 28-16-28e; or

(5)(D) the total dissolved solids and salt concentrations of the cooling water in the ponds can be land-applied at agronomic application rates without the use of dilution water or freshwater application, for controlling dissolved solids and salts, to supplement the cooling water being irrigated;

Sunflower Comment No. 1 –

Regulation K.A.R. 28-16-162 (f)(5)(C, D), as written, could result in a lining requirement for waste streams that other, competing facilities are allowed to discharge to surface waters under the NPDES System. This disparity could result in economic disadvantages over the sphere of the regulated community, particularly new facilities. Also, it is conceivable that the dissolved solids content of a given waste stream could be elevated above water quality criteria (K.A.R. 28-16-162 (f)(5)(C) but still not be sufficiently elevated such as to forego use for land application (K.A.R. 28-16-162 (f)(5)(D). Because it is not possible to capture *all* current or future waste streams within the scope of water quality criteria, we suggest a provision be included in the "General Provisions" section that affords industry the opportunity to make a demonstration to KDHE that an innocuous waste stream does not pose a threat yet has not been included on the list. This demonstration could be based upon toxicity, water quality or other factors as standardized by EPA.

Sunflower Comment No. 2 –

If an industry proposes to discharge a waste stream with moderate pollution potential and they are proposing a site in a geographic location of the State that does not have groundwater resources, such as in the Smoky Hills Region, they would be required to install single or double-lined lagoons systems even though a low pollution threat to groundwater exists. By contrast, KDHE has appropriately taken into account geographic conditions in proposing standards for the Equus-Beds Region of Kansas. Because there may be future industries which produce innocuous waste streams having very low pollution potential, and because there are regions of Kansas which do not have groundwater resources, provision should be made allowing industry the

opportunity to install, either by way of KDHE classification (category) or by variance, an unlined system for innocuous waste streams in certain geographic regions of the State.

Sunflower Comment No. 3 –

The electric utility and foundry industries typically employ unlined and uncovered coal storage piles at their facilities. During inclement weather, these temporary fuel sources can be exposed to leach-through and material transport. Attachments A and B provide laboratory analyses of coal-pile leachate obtained from Electric Power Research Institute. It is conceivable that these regulations could capture coal-pile retention lagoons within the universe of lagoons requiring lining, even though minute or non-detect concentrations of metals and salts are observed in the leachate. We are uncertain if it was KDHE's specific intent not to include coal piles in the exemption; therefore we are suggesting KDHE consider an addition to KAR 28-16-162 (f) which provides a category specifically exempting coal-piles and coal-pile retention ponds, where coal is stored as a fuel source.

K.A.R. 28-16-162(5)(B) Industrial Lagoons, General Provisions

(B) "the total dissolved solids and salt concentrations of the cooling water in the ponds are not increased significantly above the groundwater source concentration;"

Sunflower Comment –

In the proposed regulation, the phrase "significantly above" is arbitrary, as no standard has been presented as to what constitutes "significantly above." We suggest guidelines be included through which this may be quantified - or otherwise assessed - thus providing surety for regulated community, environmental groups and other interested parties.

K.A.R. 28-16-162(h) Industrial Lagoons, General Provisions

(h) Industrial wastewater treatment system lagoons in existence on the effective date of this regulation shall not be required to be modified or retrofitted to comply with the provisions of this regulation, unless either of the following occurs:

(1) The secretary determines that environmental or public health threats result from the operation of the lagoon, or data exists showing the actual or potential soil or water pollution.

(2) The modification, replacement, or expansion of an industrial wastewater lagoon results in the lagoon being dewatered, and the secretary or designee orders the implementation of specific lagoon improvements to address conditions that result in noncompliance with statutory, regulatory, or permit requirements or that fail to ensure protection of public health or the environment. Only those specific improvements required by the secretary or designee shall be required to be implemented by the permittee.

Sunflower Comment No. 1 –

Provision KAR 28-16-162 (h)(1) allows continued operation of existing impoundments unless KDHE determines a public health threat exists or data demonstrates the “*potential [for] soil and water pollution.*” The latter half of subsection (h)(1) is both redundant and introduces ambiguity because the KDHE must necessarily have relied on data demonstrating soil or water pollution to make a determination that an environmental or public health exists. Subsection (h)(1) would also give KDHE the authority to order lagoon modifications based on the *potential* for soil or water pollution, as opposed to being required to rely on an actual pollution occurrence. Because the definition of what constitutes “potential” can vary throughout staff changes and time, we suggest a reasonableness standard be included in the regulations which quantify what criteria the KDHE will use to determine whether operation of a lagoon threatens environmental or public health – thus providing surety for the regulated community, environmental groups and other interested parties.

Sunflower Comment No. 2 –

KAR 28-16-162(h)(2) – Under subsection (h)(2), industries in Kansas will be allowed to continue operation of existing impoundments unless, due to noncompliance with statutory, regulatory, or permit requirements, KDHE orders the implementation of specific lagoon improvements requiring modification, replacement, or expansion of an industrial wastewater lagoon, resulting in a dewatering of that lagoon. The net result of this exception is that KDHE could force an upgrade of existing lagoons with only a *potential* threat to environment, public health or merely by implementing new regulatory or permit requirements unrelated to potential or actual environmental threats. This essentially eliminates the grandfathering provision which leads to a situation where the exception swallows the rule. As illustration, consider our Holcomb facility which has a Water Pollution Control Permit under the NPDES System. This Permit is renewed every 5 years. During the most recent renewal, the revised Permit contained additional operating and compliance requirements. The concern with the grandfather provision is that similar requirements could be folded into *future* permits during renewal, which over 1 - 2 permit cycles could lead to a non-compliance condition of an otherwise sound facility – placing the impoundment within the scope of potentially mandated upgrades. A grandfather clause typically allows *existing* facilities to continue operation; thus these regulations, as proposed, are retroactive because facilities that historically may have impacted the environment, but now are being operated in a sound manner, may be captured in a future “non-compliance” scenario.

We believe existing facilities must be allowed to continue operation under the *historical* permit conditions until their useful life is exhausted, an application is made to KDHE for reconstruction/expansion, or an actual release occurs resulting in soil or water pollution. This approach would allow operators of impoundments certainty when undertaking environmental designs and in operational compliance. By contrast, this regulation places at risk all existing facilities that may be environmentally sound but do not possess all of the requirements contained in the regulation. We believe that any existing facility exemption should be just that - allowing existing facilities to continue operation unless a release to the soil and ground water occurs, thus indicating operational insufficiency to protect the environment. One compromise to protect the environment might be to require existing facilities to install monitoring systems under the provisions of proposed regulation KAR 28-16-172 – “Monitoring Wells,” which would allow for assessment of a facilities’ adequacy to protect the environment.

Sunflower Comment No. 3 –

Sunflower maintains four synthetically-lined lagoons at our Holcomb Station. Each lagoon each utilizes a single, 36-mil hypalon liner as a means of containing wastewater. The liners in our lagoons are approximately 22 years old, and as part of a maintenance program Sunflower anticipates the need to replace the liners within the next 2-4 year period. If the regulations are promulgated as proposed, Sunflower will be obligated to upgrade to a double-lined system with leachate collection, even though we have not observed impacts to groundwater in a monitoring-well network adjacent to our lagoons. Because groundwater monitoring data from our site *demonstrates* the adequacy of the single-lined system, we question the appropriateness of requiring a double-lined system for our site, particularly in the context of a good environmental compliance record.

K.A.R. 28-16-174 Variance from Specific Requirements

(a) Each person seeking a variance from any of the requirements in K.A.R. 28-16-160 through 28-16-173 shall submit to the secretary, in writing, a request for the variance and shall provide information and data relevant to the variance request, for the secretary's review and consideration for approval.

(b) Each variance request shall specify why the request should be considered and how the requested variance meets the provisions of K.A.R. 28-16-160 through 28-16-173 and provides for protection of public health and the environment.

(c) A variance may be granted by the secretary if the request is in keeping with the provisions of K.A.R. 28-16-160 through 28-16-173 and the secretary determines that the requested variance will protect public health and the environment. In evaluating each variance request, site-specific conditions, which may include the depth to groundwater, the quantity of groundwater present, hydrogeologic factors, alternative technical information, and alternative designs, shall be considered by the secretary.

Sunflower Comment –

In KAR 28-16-174, KDHE has provided a variance option that could allow for site or waste specific circumstances to be taken into account when deviating from the technical or administrative requirements. Sunflower agrees that a variance may be required to be in keeping with KSA 65-171(d) which, in pertinent part, reads as follows:

“taking into account the varying conditions that are probable for each source of sewage and its possible place of disposal, discharge or escape, may provide for varying control measures required in each case to those the Secretary finds to be necessary to prevent pollution.

Because one purpose of a variance is to allow the regulated community flexibility and protection in dealing with varying conditions, codification of *how* a variance may be applied for, reviewed, and granted is essential to ensure consistency throughout time and staff changes. The highly detailed nature of the regulations in K.A.R. 28-16-160 through 28-16-173 are brightly contrasted by the vagueness found in the proposed variance, which contains uncertain criteria by which an alternative request can be objectively measured by KDHE. We suggest KDHE consider incorporation of variance language in KAR 28-16-174 similar to the variance already found in the Kansas Solid Waste Regulations KAR 28-29-2, as follows:

28-29-2. Variances.

“(a) General Procedure. If exceptional circumstances make strict conformity with these regulations impractical or not feasible, a person may submit a written request for a variance from these regulations. The department may grant a variance from these regulations and stipulate conditions and time limitations as necessary to comply with the intent of all applicable state and federal laws. The department shall review the variance request and notify the person within ninety (90) days of receipt that the application is approved, denied, or requires modification.”

“(b) Experimental operations. Variances may be granted to facilitate experimental operations intended to develop new methods or technology. Variances for experimental operations shall be considered only where significant health, safety, environmental hazards, or nuisances will not be created, and when a detailed proposal is submitted and accepted which sets forth the objectives, procedures, controls, monitoring, reporting, time frame, and other data regarding the experiment.”

“(c) Restrictions. Variances for experimental operations shall be limited to a maximum of two (2) years; however, the department may renew the variance for one or more additional two-year periods upon a showing by the person that the need for a variance continues to be valid.”

With the addition of:

“(d) Performance-based design. An applicant may propose variances from the general design requirements otherwise imposed by this regulation where: (1) the risk for contamination is either ~~minimal~~ low initially or can be made ~~minimal~~ low by the conditions, controls, and procedures set forth in the request; (2) the specific wastewater materials to be salvaged, contained or stored have ~~no~~ low toxicity potential to cause risk to human health or the environment, or ~~and~~;

(3) where the specific materials to be salvaged, contained or stored will or could in the normal course of activity be discharged into the environment through a legally established point of discharge. Variances granted place a ~~strict~~ limitation of changes in the process which require administrative review and acceptance prior to implementation of any such change."

We suggest that KDHE consider including in the variance provision opportunities to evaluate the toxicity of wastewaters, site parameters and other risk or site-based parameters which may be reasonably applied in specific situations that are consistent with good industrial and environmental design practice.

Thank you for consideration

Sincerely yours,

SUNFLOWER ELECTRIC POWER CORPORATION

Attachment A

Coal Pile Runoff Data

EPRI PISCES Database

08/18/2004 11:16:22

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Non Detect Data: DI

Chemical Substance	Average	Maximum	Median	Minimum	Units	Number of Data Points	Number of Non Detects
Aluminum	0.21	0.54	0.125	0.05	mg/l	4	1
Antimony	0.00914	0.02	0.003	0.00099	mg/l	5	3
Arsenic	0.00282	0.006	0.00204	0.002	mg/l	5	3
Barium	0.194	0.55	0.121	0.043	mg/l	5	0
Beryllium	0.0008	0.001	0.0009	0.0002	mg/l	5	5
Boron	0.61	0.95	0.645	0.2	mg/l	4	1
Bromide	1	1	1	1	mg/l	2	2
Cadmium	0.00194	0.005	0.00111	0.001	mg/l	5	2
Calcium	84.1	270	45	3.15	mg/l	5	0
Chloride	27.4	93	8	1	mg/l	5	1
Chromium	0.0035	0.005	0.00381	0.00097	mg/l	5	3
Cobalt	0.00381	0.006	0.00455	0.00015	mg/l	4	3
Copper	0.00324	0.0074	0.002	0.00075	mg/l	5	0
Fluoride	0.664	1	0.84	0.24	mg/l	5	2
Iron	2.31	13.3	0.055	0.03	mg/l	6	1
Lead	0.0041	0.015	0.00158	0.0009	mg/l	5	2
Magnesium	24.6	68	18	1.26	mg/l	5	0
Manganese	0.314	1.2	0.0239	0.00815	mg/l	4	0
Mercury	0.00024	0.0003	0.0002	0.0002	mg/l	5	4
Molybdenum	0.00366	0.00847	0.00209	0.002	mg/l	4	2
Nickel	0.602	3	0.003	0.00065	mg/l	5	2
Selenium	0.00253	0.00335	0.002	0.002	mg/l	5	4
Silver	0.00123	0.0023	0.0012	0.0002	mg/l	3	1
Sodium	53.9	120	48	2	mg/l	5	0
Thallium	0.09	0.09	0.09	0.09	mg/l	2	2
Vanadium	0.00252	0.0033	0.003	0.00077	mg/l	4	3
Zinc	0.00767	0.01	0.01	0.003	mg/l	3	2

Attachment B

Coal Pile Runoff Data

Units are
mg/L

Parameter (Code)	TR- 108420_96P4- 209	TR- 108420_96P4W- 6	TR- 108425_96FCA- 3	TR- 108425_96FCA- 4
Al	0.310	0.069	0.094	0.691
As	<0.005	<0.005	<0.005	<0.005
B	0.570	0.468	0.281	0.710
Ba	0.168	0.153	0.194	0.13
Br	1.25	0.08	<0.2	<0.2
Ca	160	157	26	38
Cd	<0.0025	<0.0025	<0.0025	<0.0025
Cl	45	56	15	15
Cr	<0.0025	<0.0025	<0.0025	<0.0025
Cu	<0.01	0.003	<0.01	0.013
DIC, direct	33.3	35.0	15.3	15.2
DOC direct	6.4	6.3	1.8	2.6
F	0.275	0.365	0.265	0.264
Fe	<0.05	<0.05	<0.05	<0.05
Fe(II)		<0.04		
Fe(III)		<0.1		
Mg	39	42	6	5
Mn	0.013	0.005	0.007	<0.0025
Mo	<0.05	<0.5	<0.5	<0.5
Na	39	37	30	32
NH3, Unionized		0.1		
Ni	<0.005	<0.005	<0.005	<0.005
NO2	<0.02	0.181	<0.2	<0.2
NO3	3.40	6.85	1.22	0.36
ORP/Eh corrected	471	348	348	351
Pb	<0.005	<0.005	<0.005	<0.005
pH (field)	8.34	8.51	7.21	8.93
PO4	<0.16	0.349	<0.25	<0.25
S	154	131	26	35
S2O3			<0.25	<0.25
Se	<0.01	<0.01	<0.01	<0.01
Si	2.170	3.000	1.762	2.101
SO3	<0.3	<3	<0.25	<0.25
SO4	436	395	83	113
Spec. Cond. (field)	1242	1092	378	453
Sr	1.780	1.316	0.424	0.580
V	0.010	0.005	<0.0025	0.006
Zn	<0.025	<0.025	0.0334	0.0296



RECEIVED

SEP 9 2004

BUREAU OF WATER

September 8, 2004

Mr. Don Carlson
Kansas Department of Health and Environment
Bureau of Water
1000 SW Jackson, Suite 420
Topeka, KS 66612-1367

Dear Mr. Carlson,

Westar Energy is submitting the following comments in response to the proposed administrative regulations that addresses wastewater lagoon requirements (K.A.R. 28-16-160 thru 28-16-174). These comments are presented in two sections. The first section includes general perspectives on the proposed regulations and their potential effect on Westar Energy's operations. The second section includes more specific concerns on the wording and content of the proposed regulations.

Section 1 – Perspectives and Effects

Westar Energy has six operating energy centers and one energy center in reserve that will, to some degree, be affected by the proposed regulations. Because of the grandfathering provision offered by the proposed regulations, no immediate capital expenditures will be required. However, if an expansion or modification of any existing lagoon is necessary or a new lagoon is constructed, additional capital expenditures above the 'expected costs' may be required by the proposed regulation.

According to the Kansas State University (KSU) research referenced by the proposed regulations, these costs would not be significant – if the lagoon would be classified as low pollution potential. Generally compaction of a soil or a soil and amendment liner would be required. However, if a variance from the double liner and interstitial monitoring requirements is not granted, any lagoon other than a low pollution potential lagoon would require double, synthetic liners with interstitial monitoring. For energy centers, these systems would be expensive primarily because of their size. If installed at an energy center, the additional protection to the environment, in our opinion, would be minimal and would not justify the significant additional expense.

As proposed, if the following kinds of lagoons are not grandfathered or have not been issued a variance, they would require synthetic double liners with interstitial monitoring. These are storm water detention ponds, non-contact cooling water ponds for thermal dissipation and coal pile runoff ponds. We encourage KDHE to consider listing these kinds of ponds as low pollution potential ponds.

The storm water detention ponds at Westar Energy's energy centers are not much different than those found at construction sites or those lagoons listed by the proposed regulations as low pollution potential. As part of the NPDES discharge permits for Westar Energy's Energy Centers, some of these lagoons were required to be monitored. The monitoring of these lagoons during the past two permit renewal cycles have proved that their contents were innocuous and the monitoring requirements were dropped for the current permits.

The only difference between Westar Energy's non-contact cooling water ponds and those non-contact cooling water ponds listed as low pollution potential ponds by the proposed regulations, is that Westar Energy's non-contact cooling water contains very small quantities of scale inhibitors and sometimes may contain small quantities of corrosion inhibitors. The aquatic toxicity of these chemicals and their concentrations have been routinely checked by KDHE during permit renewals. Additionally, Westar Energy's non-contact cooling waters have routinely passed many whole effluent toxicity (W.E.T.) tests as a condition of permit renewal.

An example of a non-contact cooling/wastewater systems currently installed at an energy center is the large lake at the Wolf Creek Nuclear Power Plant near Burlington, KS. Other examples are the large ponds at Westar Energy's Murray Gill Energy Center near Wichita, KS. and the small, wetland ponds at Westar Energy's Jeffrey Energy Center near St. Marys, KS.

Lastly, coal pile runoff ponds are not listed as low pollution ponds by the proposed regulations. Our reasoning, and data, that supports these ponds to be listed as low pollution ponds has been submitted as separate comments in a letter to KDHE dated September 7, 2004 and signed with five other electric utilities.

Other than requesting that the above kinds of lagoons be listed as low pollution potential by the proposed regulations, a primary concern is that KDHE will not continue to implement requests for variances in a consistent and risk-based manner as offered by Section 28-16-174 of the proposed regulations.

Section 2 – Specific Concerns

1. Reference: 28-16-160. Definitions

(j) "Groundwater," for the purpose of these municipal, commercial, and industrial wastewater lagoon liner regulations, means water located under the surface of the land that is or can be the source of supply for wells, springs, seeps, or streams or that is held in aquifers. For the lagoon regulations, this term shall be considered capable of being a source of supply for wells if any of the following conditions is met:

- (1) The groundwater can be produced at a rate of 10 gallons or more per hour.*
- (2) Groundwater is currently being used within 1/2 mile of the proposed lagoon, regardless of the rate at which the groundwater can be produced.*
- (3) There is evidence of past groundwater use within 1/2 mile of the proposed lagoon.*

Concern. Grandfathering existing facilities (lagoons) via grandfathering the groundwater beneath the facilities appears to be limited, assuming that the term 'ground water' can be defined by a standard industry practice.

For an existing lagoon to remain exempt, the water beneath the lagoon would need to be exempt. The only provision for existing lagoons (provisions (2) and (3) are for proposed lagoons) to allow an exemption is that the groundwater can be produced at less than 10 gallons per hour. This is subject to interpretation.

(a) The rate of production is dependent on a well's diameter, borehole and screen placement. Larger wells produce more water. Typically, monitoring wells are 2 inch in diameter, have 8-inch boreholes and have 5 foot of screen above and 5 foot of screen below the top of the water table. There should be a standard well configuration referenced.

(b) Sometimes multiple aquifers are present. Which ones would apply? Different aquifers have different production rates.

(c) What if existing 4-inch wells are present. Will there be a correlation to a 'standard' well?

2. Reference: 28-16-165 (C) and 28-16-165 (d)(2), (text omitted)

Section 28-16-165 (c): "The certification (of construction) shall be based on observations by the licensed professional engineer, or designee, during construction..."

Section 28-16-165(d)(2): "The post construction testing of the soil liner shall be conducted by a licensed professional engineer or a designee, under that individuals direct supervision.

We think that each of these sections should require that designees' of the P.E. should be under direct supervision of a professional engineer.

Page 4

Comments to KDHE dated September 8, 2004

3. **Reference:** 28-16-171 (d). (text omitted)

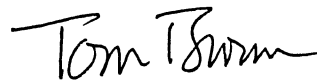
Can the text that reads “groundwater monitoring plan” be changed to “sampling and analysis Plan (SAP)””? This will correlate with the current sampling requirements of KDHE’s solid waste program.

We appreciate the opportunity to submit these comments to KDHE and hope they are helpful. If there are any additional comments or questions, please feel free to contact Tom Brown at (785) 575-148 or by e-mail at tom_brown@wr.com.

Sincerely,



Bill Eastman
Director Environmental Services
Westar Energy
818 Kansas Ave.
Topeka, KS 66618



Tom Brown
Manager, Water & Waste Programs
Westar Energy
818 Kansas Ave.
Topeka, KS 66618

September 7, 2004

Mr. Don Carlson, P.E.
Kansas Department of Health and Environment
Bureau of Water
1000 SW Jackson, Suite 420
Topeka, Kansas 66612-1367

**Re: Comments on Proposed Administrative Regulations K.A.R. 28-16-160 thru 28-16-174
Municipal, Commercial and Industrial Wastewater Lagoon Requirements**

Dear Mr. Carlson,

Pursuant to KDHE's publishing of the Proposed Municipal, Commercial and Industrial Wastewater Lagoon Regulations dated May 19, 2004, and the request for comments, the undersigned electric utilities of Kansas submit the following.

Comment 1 and Reference: 28-16-160 Definitions

- (ii) *"Wastewater treatment system" means structures or devices that collect, store, stabilize, treat, or otherwise control pollutants so that after the discharge, disposal or land application of wastewater treatment sludge or treated wastewater, water pollution will not occur, and the public health and waters of the state will be protected.*

It appears that this definition does not **clearly** exempt electric utility facilities that provide water treatment (settling) for the permanent disposal of certain coal combustion wastes such as bottom ash, fly ash and scrubber sludge. These facilities are primarily ponds and lakes, are permitted by the solid waste section of KDHE and are therefore subject to their regulations.

Suggested improvement #1 would add the following language.

"Waste water treatment systems, both discharging and non-discharging, will have a Water Pollution Control Permit."

Suggested improvement #2 would add the following language.

"Waste water treatment systems, such as ponds used for sediment control and contained within an industrial monofill that has a valid permit for operating a processing facility or solid waste disposal landfill in accordance with the provisions of Kansas Statutes Annotated 65-347 are excluded from this regulation.

Wastewater treatment systems, both discharging and non-discharging, will have a Water Pollution Control Permit.

Comment 2 and Reference: Regulatory Impact Statement, Page 14

“Coal fired power plants control stormwater runoff from coal piles and coal ash which contain concentrations of heavy metals.”

We disagree with this regulatory impact statement. It should read “ ... *which, depending on the coal used, may contain concentrations of heavy metals.*”

Comment 3 and Reference: 28-16-162. Industrial lagoons general provisions.

(f) For each new or modified industrial wastewater lagoon, the permittee may utilize a soil liner if the maximum soil liner seepage rate is less than 1/4 inch per day and the wastewater lagoons or ponds utilized for the containment or treatment of process-generated wastewater are limited to the following:

- (1) Sediment control and aggregate wash water ponds used at limestone quarries;*
- (2) Sediment control ponds used at clay pit operations; .*
- (3) Sediment control ponds used for classification and washing operations associated with sand and gravel dredging;*
- (4)) Ponds receiving once-through, non-contact cooling water in which there is no chemical addition to the cooling water and where the concentration of total dissolved solids in the cooling water is not increased significantly over the concentration of total dissolved solids in the groundwater*
- (5) Ponds receiving recirculated cooling water meeting one of the following conditions;*
 - (A) The cooling water is treated only with chlorine or bromine;*
 - (B) the total dissolved solids and salt concentrations of the cooling water in the ponds are not increased significantly above the groundwater source concentration;*
 - (C) the total dissolved solids and salt concentrations of the cooling water in the ponds do not exceed criteria that would prohibit the cooling water from being discharged in conformance with Kansas surface water quality standards as specified in K.A.R. 28-16-28b, 28-16-28c, 28-16-28d, and 28-16-28e; or*
 - (D) the total dissolved solids and salt concentrations of the cooling water in the ponds can be land-applied at agronomic application rates (without the use of dilution water or freshwater application, for controlling dissolved solids and salts, to supplement the cooling water being irrigated).*

Based on the coal analyses that all of the Kansas electric utilities have used for the past 5 – 10 years, no significant concentrations of heavy metals have been known to exist in the Powder River Basin (PRB) coal that has been used. This can be demonstrated by the NPDES permit renewals on file at KDHE, by the enclosed Electric Power Research Institute (EPRI) data from EPRI's Pisces database, and by the recent test results for two of Westar Energy's coal pile runoff ponds. Perhaps in the distant past, coal may have been used that could have contained significant concentrations of heavy metals, however, in the current regulatory climate, it is doubtful if this kind of coal will ever be burned again.

Letter dated September 7, 2004, to Mr. Don Carlson

Coal pile runoff ponds provide coal pile runoff control that is similar to many of the sediment control ponds listed as "low pollution potential" ponds by the proposed regulation. As written, no matter how clean the runoff from a coal pile is (in many ways a coal pile is a large activated carbon filter), new or expanded coal pile runoff ponds will be required to install double liners with interstitial monitoring. Unless a variance is granted, any kind of compacted soil liner will not be an option. This seems unnecessary.

The following addition to low pollution potential should affect only a small part of the regulatory universe that this regulation addresses and it is very specific to the electric generation industry. A suggested improvement would be to add another category for low pollution potential ponds.

(5) coal pile runoff control ponds for PRB coal as used by electric utilities

While individual electric utilities may choose to comment on other parts of the proposed regulations, we all agree on the above issues and associated comments.

In closing, all of the electric utilities appreciate the opportunity to provide KDHE our comments on these, and all, proposed regulations. Please keep us informed of the outcome of this proposal.

To maximize efficiency, each of us have approved of these comments via e-mail and are submitting these comments to KDHE using the following 'electronic signatures' in lieu of individual, handwritten signatures.

Sincerely,

Aquila
10700 East 350 Highway
Lees Summit, MO 64138
Attn: Steve Brooks

Kansas Power and Light
P. O. Box 418679
Kansas City, MO 64141-9679
Attn: Terry Eaton and John Horn

Board of Public Utilities
300 N. 65th St.
Kansas City, KS 66102
Attn: Pat Cassidy and Leah Ellis

Sunflower Electric Power Corporation
P. O. Box 1649
Garden City, KS 67846
Attn: Wayne Penrod and Jim Carlson

The Empire District Electric Company
P.O. Box 127
Joplin, MO 64802
Attn: George Thullesen and Kavan Stull

Westar Energy
818 Kansas Ave
Topeka, KS 66612
Attn: Bill Eastman and Tom Brown

Cc: Above signatories, with attachments (coal pile runoff pond data)

EPRI PISCES Database

08/18/2004 11:16:22

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Non Detect Data: DI

Chemical	Average	Maximum	Median	Minimum	Units	Number of	Number of Non Detect
Aluminum	0.21	0.54	0.125	0.05	mg/l	4	1
Antimony	0.00914	0.02	0.003	0.00099	mg/l	5	3
Arsenic	0.00282	0.006	0.00204	0.002	mg/l	5	3
Barium	0.194	0.55	0.121	0.043	mg/l	5	0
Beryllium	0.0008	0.001	0.0009	0.0002	mg/l	5	5
Boron	0.61	0.95	0.645	0.2	mg/l	4	1
Bromide	1	1	1	1	mg/l	2	2
Cadmium	0.00194	0.005	0.00111	0.001	mg/l	5	2
Calcium	84.1	270	45	3.15	mg/l	5	0
Chloride	27.4	93	8	1	mg/l	5	1
Chromium	0.0035	0.005	0.00381	0.00097	mg/l	5	3
Cobalt	0.00381	0.006	0.00455	0.00015	mg/l	4	3
Copper	0.00324	0.0074	0.002	0.00075	mg/l	5	0
Fluoride	0.664	1	0.84	0.24	mg/l	5	2
Iron	2.31	13.3	0.055	0.03	mg/l	6	1
Lead	0.0041	0.015	0.00158	0.0009	mg/l	5	2
Magnesium	24.6	68	18	1.26	mg/l	5	0
Manganese	0.314	1.2	0.0239	0.00815	mg/l	4	0
Mercury	0.00024	0.0003	0.0002	0.0002	mg/l	5	4
Molybdenum	0.00366	0.00847	0.00209	0.002	mg/l	4	2
Nickel	0.602	3	0.003	0.00065	mg/l	5	2
Selenium	0.00253	0.00335	0.002	0.002	mg/l	5	4
Silver	0.00123	0.0023	0.0012	0.0002	mg/l	3	1
Sodium	53.9	120	48	2	mg/l	5	0
Thallium	0.09	0.09	0.09	0.09	mg/l	2	2
Vanadium	0.00252	0.0033	0.003	0.00077	mg/l	4	3
Zinc	0.00767	0.01	0.01	0.003	mg/l	3	2



07/30/2004

Westar Energy, Inc.
Attn: Tom Brown
P.O. Box 889
Topeka, KS 66601

Date Received: 07/10/2004
Continental File No.: 6755
Continental Order No.: 95532
Project ID: Tecumseh EC
Purchase Auth.: 900567

Dear Mr. Brown:

This laboratory report, consisting of 4 pages, contains the analytical results for the following samples:

<u>CAS LAB ID #</u>	<u>SAMPLE DESCRIPTION</u>	<u>SAMPLE TYPE</u>	<u>DATE SAMPLED</u>
04070593	TEC Coal Pile Runoff Pond	Liquid	07/07/2004

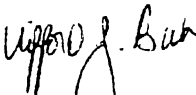
Continental is accredited by the State of Kansas through the National Environmental Laboratory Accreditation Program (NELAP). The results contained in this report were obtained using Continental's Standard Operating Procedures. These procedures are in substantial compliance with the approved methods referenced and the standards published by NELAP unless otherwise qualified in the Appendix to this report. The Appendix is an integral part of this report.

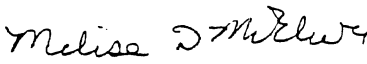
All results are reported on a wet weight basis unless otherwise stated.

Samples will be retained for thirty days unless Continental is otherwise notified.

Thank you for choosing Continental for this project. If you have any questions, please contact your Project Manager at (800)535-3076.

CONTINENTAL ANALYTICAL SERVICES, INC.


Clifford J. Baker
Technical Manager


Melisa D. McElwee
Project Manager





Page: 2

Client: Westar Energy, Inc.
Attn: Tom Brown
P.O. Box 889
Topeka, KS 66601

Date Sample Rptd: 07/30/2004
Date Sample Recd: 07/10/2004
Continental File No: 6755
Continental Order No: 95532

Lab Number: 04070593
Sample Description: TEC Coal Pile Runoff Pond

Date Sampled: 07/07/2004
Time Sampled: 1515

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Antimony, Dissolved	ND(0.006)	mg/L	1.0	0.006
Antimony, Total	ND(0.006)	mg/L	1.0	0.006
Arsenic, Dissolved (ICP)	ND(0.010)	mg/L	1.0	0.010
Arsenic, Total (ICP)	ND(0.010)	mg/L	1.0	0.010
Beryllium, Dissolved	ND(0.004)	mg/L	1.0	0.004
Beryllium, Total	ND(0.004)	mg/L	1.0	0.004
Cadmium, Dissolved	ND(0.003)	mg/L	1.0	0.003
Cadmium, Total	ND(0.003)	mg/L	1.0	0.003
Chromium, Dissolved	ND(0.010)	mg/L	1.0	0.010
Chromium, Total	ND(0.010)	mg/L	1.0	0.010
Copper, Dissolved	ND(0.020)	mg/L	1.0	0.020
Copper, Total	ND(0.010)	mg/L	1.0	0.010
Lead, Dissolved (ICP)	ND(0.005)	mg/L	1.0	0.005
Lead, Total (ICP)	0.006	mg/L	1.0	0.005
Mercury, Dissolved	ND(0.0002)	mg/L	1.0	0.0002
Mercury, Total	ND(0.0002)	mg/L	1.0	0.0002
Nickel, Dissolved	ND(0.040)	mg/L	1.0	0.040
Nickel, Total	ND(0.040)	mg/L	1.0	0.040
Selenium, Dissolved	ND(0.005)	mg/L	1.0	0.005
Selenium, Total	ND(0.005)	mg/L	1.0	0.005
Silver, Dissolved	ND(0.010)	mg/L	1.0	0.010
Silver, Total	ND(0.010)	mg/L	1.0	0.010
Thallium, Dissolved	ND(0.002)	mg/L	1.0	0.002
Thallium, Total	ND(0.002)	mg/L	1.0	0.002
Zinc, Dissolved	ND(0.020)	mg/L	1.0	0.020
Zinc, Total	0.050	mg/L	1.0	0.020

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Antimony, Dissolved	07/22/2004	07/24/2004	040722-3	MAG	204.2/7041
Antimony, Total	07/13/2004	07/19/2004	040713-5	MAG	204.2/7041
Arsenic, Dissolved (ICP)	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Arsenic, Total (ICP)	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Beryllium, Dissolved	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Beryllium, Total	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Cadmium, Dissolved	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Cadmium, Total	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Chromium, Dissolved	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Chromium, Total	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Copper, Dissolved	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Copper, Total	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B

-Continued-



CONTINENTAL ANALYTICAL SERVICES, INC.

LABORATORY REPORT

Page: 3

Client: Westar Energy, Inc.
 Sample Description: TEC Coal Pile Runoff Pond

Continental Order No.: 95532
 Lab Number: 04070593

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Lead, Dissolved (ICP)	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Lead, Total (ICP)	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Mercury, Dissolved	07/22/2004	07/23/2004	040722-4	CRD	SM 3112B/7470A
Mercury, Total	07/14/2004	07/14/2004	040714-1	CRD	SM 3112B/7470A
Nickel, Dissolved	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Nickel, Total	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Selenium, Dissolved	07/22/2004	07/23/2004	040722-5	MAG	270.2/7740
Selenium, Total	07/13/2004	07/23/2004	040713-2	MAG	270.2/7740
Silver, Dissolved	07/13/2004	07/19/2004	040713-X	MAG	200.7/6010B
Silver, Total	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Thallium, Dissolved	07/22/2004	07/28/2004	040722-4	MAG	279.2/7841
Thallium, Total	07/13/2004	07/28/2004	040713-3	MAG	279.2/7841
Zinc, Dissolved	07/13/2004	07/20/2004	040713-X	MAG	200.7/6010B
Zinc, Total	07/20/2004	07/21/2004	040720-1	MAG	200.7/6010B
Furnace Metals Total Preparation Method					Metals/3020A
ICP Metals Total Preparation Method					200.7/3010A
ICP Metals Dissolved Preparation Method					200.7/3005A
Mercury Total Preparation Method					SM 3112B/7470A
Mercury Dissolved Preparation Method					SM 3112B/7470A
Furnace Metals Dissolved Preparation Method					Metals/3005A
Total As & Se by GFAA Preparation Method					206.2/270.2/7060/774
Antimony Total Preparation Method					200.7/3005A
Antimony Dissolved Preparation Method					Metals/200.7/3005A
Dissolved As & Se by GFAA Preparation Method					206.2/270.2/7060/774

Conclusion of Lab Number: 04070593

ND(), where noted, indicates none detected with the reporting limit in parentheses.

-Continued-



APPENDIX

Page: 4

Client: Westar Energy, Inc.
Attn: Tom Brown
P.O. Box 889
Topeka, KS 66601

Date Sample Rptd: 07/30/2004
Date Sample Recd: 07/10/2004
Continental File No: 6755
Continental Order No: 95532

Data Qualifiers:

There were no data qualifiers for this Continental Order.

No analysis with a holding time less of seventy-two hours or less was performed in this Continental order.

All samples were not received at the recommended temperature of less than 6 degrees Celsius.

-Conclusion of Laboratory Report-





07/29/2004

Westar Energy, Inc.
Attn: Tom Brown
P.O. Box 889
Topeka, KS 66601

Date Received: 07/10/2004
Continental File No.: 6755
Continental Order No.: 95530
Project ID: Lawrence EC
Purchase Auth.: 900567

Dear Mr. Brown:

This laboratory report, consisting of 4 pages, contains the analytical results for the following samples:

<u>CAS LAB ID #</u>	<u>SAMPLE DESCRIPTION</u>	<u>SAMPLE TYPE</u>	<u>DATE SAMPLED</u>
04070590	LEC Coal Pile Runoff Pond	Liquid	07/07/2004

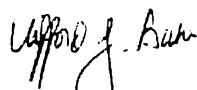
Continental is accredited by the State of Kansas through the National Environmental Laboratory Accreditation Program (NELAP). The results contained in this report were obtained using Continental's Standard Operating Procedures. These procedures are in substantial compliance with the approved methods referenced and the standards published by NELAP unless otherwise qualified in the Appendix to this report. The Appendix is an integral part of this report.

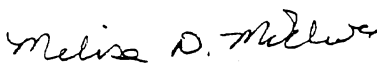
All results are reported on a wet weight basis unless otherwise stated.

Samples will be retained for thirty days unless Continental is otherwise notified.

Thank you for choosing Continental for this project. If you have any questions, please contact your Project Manager at (800)535-3076.

CONTINENTAL ANALYTICAL SERVICES, INC.


Clifford J. Baker
Technical Manager


Melisa D. McElwee
Project Manager





Page: 2

Client: Westar Energy, Inc.
Attn: Tom Brown
P.O. Box 889
Topeka, KS 66601

Date Sample Rptd: 07/29/2004
Date Sample Recd: 07/10/2004
Continental File No: 6755
Continental Order No: 95530

Lab Number: 04070590
Sample Description: LEC Coal Pile Runoff Pond

Date Sampled: 07/07/2004
Time Sampled: 1430

Analysis	Concentration	Units	Dilution Factor	Reporting Limit
Antimony, Dissolved	ND(0.006)	mg/L	1.0	0.006
Antimony, Total	ND(0.006)	mg/L	1.0	0.006
Arsenic, Dissolved (ICP)	ND(0.010)	mg/L	1.0	0.010
Arsenic, Total (ICP)	ND(0.010)	mg/L	1.0	0.010
Beryllium, Dissolved	ND(0.004)	mg/L	1.0	0.004
Beryllium, Total	ND(0.004)	mg/L	1.0	0.004
Cadmium, Dissolved	ND(0.003)	mg/L	1.0	0.003
Cadmium, Total	ND(0.003)	mg/L	1.0	0.003
Chromium, Dissolved	ND(0.010)	mg/L	1.0	0.010
Chromium, Total	0.020	mg/L	1.0	0.010
Copper, Dissolved	ND(0.020)	mg/L	1.0	0.020
Copper, Total	0.023	mg/L	1.0	0.010
Lead, Dissolved (ICP)	ND(0.005)	mg/L	1.0	0.005
Lead, Total (ICP)	0.015	mg/L	1.0	0.005
Mercury, Dissolved	ND(0.0002)	mg/L	1.0	0.0002
Mercury, Total	ND(0.0002)	mg/L	1.0	0.0002
Nickel, Dissolved	ND(0.040)	mg/L	1.0	0.040
Nickel, Total	ND(0.040)	mg/L	1.0	0.040
Selenium, Dissolved	ND(0.005)	mg/L	1.0	0.005
Selenium, Total	ND(0.005)	mg/L	1.0	0.005
Silver, Dissolved	ND(0.010)	mg/L	1.0	0.010
Silver, Total	ND(0.010)	mg/L	1.0	0.010
Thallium, Dissolved	ND(0.003) Q	mg/L	1.0	0.002
Thallium, Total	ND(0.002)	mg/L	1.0	0.002
Zinc, Dissolved	ND(0.020)	mg/L	1.0	0.020
Zinc, Total	0.097	mg/L	1.0	0.020

Analysis	Date Prepared	Date Analyzed	QC Batch	Analyst	Method(s)
Antimony, Dissolved	07/22/2004	07/24/2004	040722-3	MAG	204.2/7041
Antimony, Total	07/13/2004	07/19/2004	040713-5	MAG	204.2/7041
Arsenic, Dissolved (ICP)	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Arsenic, Total (ICP)	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Beryllium, Dissolved	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Beryllium, Total	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Cadmium, Dissolved	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Cadmium, Total	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Chromium, Dissolved	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Chromium, Total	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Copper, Dissolved	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Copper, Total	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Lead, Dissolved (ICP)	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B

-Continued-



CONTINENTAL ANALYTICAL SERVICES, INC.

LABORATORY REPORT

Page: 3

Client: Westar Energy, Inc.
 Sample Description: LEC Coal Pile Runoff Pond

Continental Order No.: 95530
 Lab Number: 04070590

<u>Analysis</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>	<u>QC Batch</u>	<u>Analyst</u>	<u>Method(s)</u>
Lead, Total (ICP)	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Mercury, Dissolved	07/22/2004	07/23/2004	040722-4	CRD	SM 3112B/7470A
Mercury, Total	07/14/2004	07/14/2004	040714-1	CRD	SM 3112B/7470A
Nickel, Dissolved	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Nickel, Total	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Selenium, Dissolved	07/22/2004	07/23/2004	040722-5	MAG	270.2/7740
Selenium, Total	07/13/2004	07/23/2004	040713-2	MAG	270.2/7740
Silver, Dissolved	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Silver, Total	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Thallium, Dissolved	07/22/2004	07/28/2004	040722-4	MAG	279.2/7841
Thallium, Total	07/13/2004	07/28/2004	040713-3	MAG	279.2/7841
Zinc, Dissolved	07/22/2004	07/24/2004	040722-6	MAG	200.7/6010B
Zinc, Total	07/20/2004	07/20/2004	040720-1	MAG	200.7/6010B
Furnace Metals Total Preparation Method					Metals/3020A
ICP Metals Total Preparation Method					200.7/3010A
ICP Metals Dissolved Preparation Method					200.7/3005A
Mercury Total Preparation Method					SM 3112B/7470A
Mercury Dissolved Preparation Method					SM 3112B/7470A
Furnace Metals Dissolved Preparation Method					Metals/3005A
Total As & Se by GFAA Preparation Method					206.2/270.2/7060/774
Antimony Total Preparation Method					200.7/3005A
Antimony Dissolved Preparation Method					Metals/200.7/3005A
Dissolved As & Se by GFAA Preparation Method					206.2/270.2/7060/774

Q - Data qualifiers were required. See the Appendix to this report.

Conclusion of Lab Number: 04070590

-Continued-

ND(), where noted, indicates none detected with the reporting limit in parentheses.



APPENDIX

Page: 4

Client: Westar Energy, Inc.
Attn: Tom Brown
P.O. Box 889
Topeka, KS 66601

Date Sample Rptd: 07/29/2004
Date Sample Recd: 07/10/2004
Continental File No: 6755
Continental Order No: 95530

Data Qualifiers:

<u>CAS LAB ID #</u>	<u>TEST NAME</u>	<u>QC BATCH</u>	<u>QUALIFIER</u>
04070590	Thallium, Dissolved	040722-4	M

M - Reporting limit higher than normal due to matrix interferences.

No analysis with a holding time less of seventy-two hours or less was performed in this Continental order.

All samples were not received at the recommended temperature of less than 6 degrees Celsius.

-Conclusion of Laboratory Report-



Sept. 6 2004

Dear Sir,

I was given an article out of the Garden City Telegram by a neighbor, concerning your meeting in Dodge City on lagoon regulations.

We live a mile and a half from one of Seaboards large hog farms. The one which is close to us, has two lagoons, a deep one and a shallow one. Something must be wrong there, as the deep one has never had much in it where all the other farms the deep ones some times run over when the wind is real strong. Anyway, the plastic liner is strung all around the edge of it. The shallow pit has several very large bubbles in it. I mean one is very large!

My husband called the Dodge City KDHE office to complain and was told by the woman there that the hog lagoons didn't have to have the plastic liners in them, that it was a curtsey on thier part. Really! A curtsey to whom?! The stench on some days is horriable and now your saying they don't have to have a liner so we can worry about the contamination to our water supply. Its well! We know they will eventually use up our water, and the state has told us nothing can be done till that happens.

Something definitely needs to be done with the lagoons out in our area. Can you imagine the gasess underneath those bubbles! Again the smell is so bad some nights, it comes through our air conditioning unit. Not real strong like when your outside but still you can smell it.

Maybe it's time you people back in Topeka started doing something about these mega hog farms. Why should we whose ancestors homesteaded our place and several around us, have to give up our water supply and our way of life for some big corporation?! When the water is gone so will they be. Doesn't leave much hope for us does it?!

*Dale & Daratha Appl
Rt. 2 Box 153
Leoti, KS. 67861*

RECEIVED

SEP 9 2004

BUREAU OF WATER



"Bryce Winter"
<bwinter@Mkec.com>

09/09/04 03:37 PM

To: <dcarlson@kdhe.state.ks.us>
cc: "Lynn Moore" <lmoore@Mkec.com>, "Willis Wilson"
<wwilson@Mkec.com>
Subject: Proposed Wastewater Lagoon Comments

Don,

Please see attachment for comments from MKEC.

Thanks

<<kdhe lagoon.doc>>

Bryce L. Winter, Ph.D.
winterb@mkec.com

MKEC Engineering
411 N. Webb Road
Wichita, KS 67206
316-684-9600 (TEL)



316-684-5100 (FAX) kdhe lagoon.doc



MKEC ENGINEERING CONSULTANTS, INC.
411 N. Webb Road
Wichita, Kansas 67206

PHONE: (316) 684-9600 FAX: (316) 684-5100

M E M O R A N D U M

To: Don Carlson
Kansas Department of Health and Environment
Division of Environment
Bureau of Water

Date: September 9, 2004

From: Bryce Winter & Lynn Moore, MKEC Engineering Consultants

Reference: Proposed Municipal, Commercial, and Industrial Lagoon Regulations.

MKEC has the following comments regarding the proposed wastewater lagoon regulations:

Postconstruction Leakage Testing.

We suggest that the rules indicate the types of postconstruction leakage testing protocols that are considered appropriate for synthetic membrane and soil liners in municipal, commercial, and industrial lagoons. Determination of the maximum leakage of 1/64" for impermeable membranes and 1/10" for soil liners can be affected by variables such as wind, wave action, water temperature, atmospheric pressure, relative humidity and evaporation that are difficult to measure and extrapolate to the lagoon. To achieve a degree of accuracy to 1/64", these factors may need to be considered. We also suggest that the rules specify the course of action if the test results do not meet the required 1/64" (impermeable membrane) or 1/10" (soil liner) requirements.



K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

September 7, 2004

Mr. Don Skokan
5825 Memphis
Wichita, Kansas 67220

Re: Alternative Community Sewer Systems (ACSS)

Dear Mr. Skokan:

This responds to your September 2, 2004 letter addressing the Kansas Department of Health and Environment's (KDHE's) proposed Municipal, Commercial, and Industrial (MCI) Lagoon Regulations and their relationship to regulating Alternative Community Sewer Systems (ACSS) in Sedgwick County. I am sorry if there may have been confusion regarding whether the proposed KDHE regulations would address ACSSs. In the pre-regulation development information provided prior to the March/April 2003 public outreach activities, KDHE noted the proposed regulations were one part of a series of activities KDHE was taking to enhance groundwater protection throughout the entire State. Noted in the outreach information were regulations addressing the design and operation of brine ponds utilized by the underground hydrocarbon storage industry. These brine pond regulations have been developed and adopted. It also noted that proposed regulations, similar to the MCI regulations, were being developed and will be run as a separate initiative addressing livestock waste management and wastewater lagoons.

KDHE staff are aware of the ACSS issue in Sedgwick County. At this time, KDHE does not have plans for the development of specific regulations addressing the ACSS issue(s). As the specific issue(s) is presently not well defined, we are unable to make a determination whether KDHE currently has adequate statutory authority to develop regulations which would address the specific concern(s). If KDHE does not currently have clear statutory authority for the development of the proposed regulations, the statutory authority would have to be secured first.

Currently, individual wastewater systems are regulated locally by cities or counties. Local regulations follow general State regulations and guidelines. The issues you note are difficult as they touch on land use controls and management options and a myriad of alternate treatment systems of varying efficiency. Your comments in your April 26, 2003 letter (attachment) indicate good insight into the issues concerning ACSSs.

Having the matter addressed by the Legislature is always an option. Their involvement in establishing policy, direction, and clear agency authority is always beneficial in establishing regulations addressing an issue such as this. Thank you for support of those efforts to protect our groundwater resources.

Sincerely yours,

A handwritten signature in cursive script, reading "Donald R. Carlson". The signature is written in dark ink and is positioned above the printed name and title.

Donald R. Carlson, P.E.
Chief, Industrial Programs Section
Bureau of Water

DRC:dc

pc: John Goetz - SCDO

09/02/04

Don Carlson

Kansas Department of Health & Environment

Division of Environment

Bureau of Water

1000 SW Jackson Street, Suite 420

Topeka, KS 66612-1367

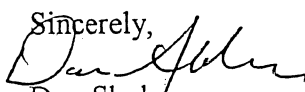
Re: Proposed KDHE regulations for wastewater lagoon requirements

I am concerned about contamination to the Equus Beds from wastewater sources and, based on that concern, I submitted written comment (attached) in 04/26/03 regarding the issue of Alternative Community Sewer Systems (ACSS) in Sedgwick County. At that time, I thought the issue was protecting the Equus Beds, and we were not restricted to only regulations addressing municipal, commercial, and industrial wastewater lagoons requirements.

Obviously I was mistaken. I attended the public meeting on August 26, 2004 at the Sedgwick County Extension, Wichita, and it became clear that the concern was focused entirely on lagoon requirements. While I concur with Mike Dealy, Manager of Equus Beds GMD No.2, in praising Secretary Bremby and KDHE staff for presenting the proposed regulations that will hopefully provide protection of this valuable resource, I am still concerned about ACSS.

Would you kindly advise me of how my concern could be eventually translated into Kansas regulations? Is this a legislative matter, or can your department initiate the action? Your comments will be appreciated.

Sincerely,



Don Skokan

5825 Memphis

Wichita, KS 67220

don_skokan@yahoo.com

RECEIVED

SEP 3 2004

BUREAU OF WATER

04/26/03

Don Carlson

Kansas Department of Health & Environment

Division of Environment

Bureau of Water

1000 SW Jackson Street, Suite 420

Topeka, KS 66612-1367

Re: Proposed KDHE Regulations for Wastewater

According to your public notice, the proposed KDHE regulations seem to be mostly concerned with municipal, commercial, and industrial wastewater lagoon liner regulations. However, the issue of Alternative Community Sewer Systems (ACSS), which don't necessarily utilize a lagoon system, should also be covered by the proposed regulations. I have spoken to Mark Bradbury, District Environmental Administrator, and he said that if two or more people (homeowners) hook up together for their wastewater collection, they would need a permit. They would also need to form some type of sewer district utility.

By way of some background, there is apparently a push by Sedgwick County to establish ACSS outside the city limits. For many people this is a sprawl issue, and would allow for leapfrog type cluster development in the county - but I realize that this issue is probably beyond the scope of the proposed regulations. It would appear that the first big development for ACSS would be in Bentley Meadows, which is located over the Equus Beds. I had talked with Irene Hart, Director of Development, Sedgwick County, and have a fairly good idea of how one ACSS systems work (i.e., Orenco Systems Inc.). I have also received good input from Mark Bradbury, who seems very knowledgeable about ACSS.

David Warren, Director, City Sewer & Water, had previously indicated that "package plants" (i.e., ACSS) were not good for the environment, but Bradbury feels that these were an older mechanical system and can't be compared to the new ACSS. According to Bradbury, when there are problems with the ACSS it's usually related to the long term operation and maintenance by private groups, and not the system itself. What Bradbury suggested was that Sedgwick County establish a county sewer district to provide appropriate oversight. He feels that having a government entity responsible as the permit holder will go along way to insure that the systems work properly.

I am not, however, as optimistic as Bradbury. In my view, ACSS are a new and untested technology. I think that there are a variety of concerns about these systems, some of which were mentioned by Bradbury at a recent presentation to the Southwind Sierra Club, Wichita. I would suggest the following concerns: 1) the newness of the technology, 2) the nature of sewer utilities (i.e., public vs private - with private not accountable to the public, 3) who pays for the hookup to larger systems in the future, 4) who will pay to meet future water quality standards (e.g., nitrates, herbicide, etc.), 5) will there be long-term performance bonds, and 6) will there be site assessments by a certified soil profiler. Unless there are regulations covering ACSS, I would suggest that developers will utilize the wastewater collection and treatment system with

the lowest cost to install and maintain. Only appropriate regulations will require developers to be more accountable, and insure that precious groundwater is protected.

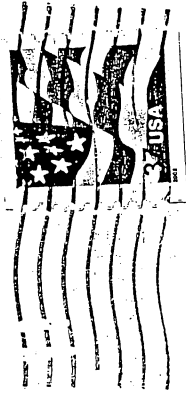
Bradbury said that KDHE was taking a cautious approach on the use of ACSS in large community developments, but they don't want to reject the concept out of hand. Developers would need to bring in a properly prepared engineering report that lays out the proposed system for their engineers to review - just like is done on any public wastewater treatment system. In my opinion, appropriate regulations would be essential to this evaluative process.

Don Skokan
5825 Memphis
Wichita, KS 67220

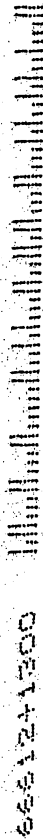
don_skokan@yahoo.com

Don Skokan
5925 Memphis
Wichita, KS

67220



Don Carlson
Kansas Dept. of Health & Environment
Division of Environment
Bureau of Water
1000 SW Jackson St., Suite 420
Topeka, KS 66612-1367





"Jim Olsta"
<jim.olsta@cetco.com>
>

09/01/04 09:03 AM

To: <dcarlson@kdhe.state.ks.us>
cc: "Tom Munn" <tom.munn@cetco.com>, "Rodney Kirch"
<rodney.kirch@cetco.com>
Subject: Proposed Wastewater Lagoon Regulations

Dear Mr. Carlson,

CETCO respectfully submits the attached comments on the Proposed Wastewater Lagoon Regulations. Please contact me if you have any questions. CETCO would be happy to meet with KDHE to discuss these comments in more detail.

Sincerely,

Jim Olsta
Technical Manager
Lining Technologies Group
CETCO
1500 W. Shure Dr.
Arlington Heights, IL 60004
(847) 818-7912 direct
(847) 577-5566 fax



e-mail: jim.olsta@cetco.com KDHE.doc TR-316.pdf FLUXEQKS.xls



September 1, 2004

Mr. Donald Carlson
Kansas Department of Health and Environment
Bureau of Water
1000 SW Jackson
Suite 420
Topeka, KS 66612-1367

Subject: Comments on Proposed Regulations Article 16 – Water Pollution Control; Municipal, Commercial and Industrial Wastewater Lagoon Requirements, May, 2004.

Dear Mr. Carlson:

CETCO is the leading manufacturer of geosynthetic clay liners (GCLs) and a member of the Geosynthetic Research Institute. GCLs with their low permeability and high swelling properties are one of the key geosynthetics used in environmental design with over 150 million square feet installed annually in the U.S. GCLs are a layer of bentonite bonded between two geosynthetics. CETCO GCLs can be classified in the following groups:

- Unreinforced GCL (Claymax 200R), $k \leq 5 \times 10^{-9}$ cm/s per ASTM D5887.
- Reinforced needlepunched GCL (Bentomat ST, Bentomat DN, Bentomat SDN), $k \leq 5 \times 10^{-9}$ cm/s per ASTM D5887.
- Membrane-backed GCL, a reinforced GCL laminated to a 4 or 20 mil membrane (Bentomat CL, Bentomat CLT), $k \leq 5 \times 10^{-10}$ cm/s per ASTM D5887.

Further descriptions of these GCLs are available at the www.cetco.com website. Pricing for material and installation of a membrane-backed geosynthetic clay liner is similar to that of a 30-mil synthetic membrane.

CETCO respectfully submits the following comments on Proposed Regulations Article 16 – Water Pollution Control; Municipal, Commercial and Industrial Wastewater Lagoon Requirements dated May, 2004.

The USEPA and the geosynthetics industry have done much research on synthetic membranes, compacted clay liners and GCLs. The geosynthetics industry acknowledges that due to minor defects from manufacturing and installation damage that virtually all synthetic membranes leak. This is illustrated by USEPA leakage data from double lined landfills under a maximum 1' of head per attached TR-316. (Note that the leakage would be greater for lagoons due to their higher head). A composite liner incorporating the high swelling and self-healing properties of bentonite can help seal off defects. Leakage was lowest through composite liners consisting of a membrane underlain by a GCL.

Utilizing Darcy's Law, a membrane-backed GCL with a typical thickness of 0.25 inches (0.635 cm) and hydraulic conductivity of $\leq 5 \times 10^{-10}$ cm/s yields a leakage of 1/120 in/day at a 10 foot head (see attached spreadsheet). This is lower leakage than the hydraulic requirement of 1/64 in/day for the "impermeable synthetic membrane liner" in the proposed regulations. Thus, based upon USEPA data and theoretical equations, CETCO feels that the current proposed regulations should be revised as follows to allow the use of membrane-backed GCLs in municipal, commercial and industrial wastewater lagoons.

28-16-160. Definitions.

Add a definitions for “Impermeable membrane-backed geosynthetic clay liner” and “Maximum membrane-backed geosynthetic clay liner leakage rate” to include membrane-backed GCLs in the regulation.

(l) “Impermeable membrane-backed geosynthetic clay liner” means a commercially manufactured membrane liner composed of synthetic materials, commonly identified as being plastic or plastic polymer materials, bonded to a geosynthetic clay liner that, when properly installed, would provide for the more stringent of either of the following:

- (1) A maximum monitored or calculated seepage rate of 1/64 inch per day; or
- (2) the liner manufacturer’s criteria for the material and installation of the impermeable membrane-backed geosynthetic clay liner expressed in units of volume per area per unit of time (gallons per acre per day),

(l) through (r) become (m) through (s).

(t) “Maximum membrane-backed geosynthetic clay liner leakage rate” means a monitored or calculated leakage rate that is the more stringent of either 1/64 inch/day or the liner manufacturer’s criteria for the material and installation of the membrane-backed geosynthetic clay liner expressed in units volume per area per unit of time (gallons per acre per day).

28-16-161. Municipal and Commercial Lagoons. General Provisions.

Revise (d) and (e) to include membrane-backed geosynthetic clay liners.

(d) For each new or modified lagoon constructed over the Equus Beds, the permittee shall, at a minimum, employ a single impermeable synthetic membrane liner **or impermeable membrane-backed geosynthetic clay liner**. Constructed soil liners ...

(e) For each new or modified lagoon, the permittee may utilize a single impermeable synthetic membrane liner **or impermeable membrane-backed geosynthetic clay liner**, in lieu of a constructed soil liner.

28-16-162. Industrial Lagoons. General Provisions.

Revise (d), (e) and (g) to include membrane-backed geosynthetic clay liners.

(d) For each new or modified lagoon constructed over the Equus Beds and utilized solely for the containment or treatment of domestic sewage, the permittee shall, at a minimum, employ a single impermeable synthetic membrane liner **or impermeable membrane-backed geosynthetic clay liner**. Constructed soil liners may be employed if all of the following conditions are met ...

(e) For each new or modified lagoon utilized solely for the containment or treatment of domestic sewage, the permittee may utilize a single impermeable synthetic membrane liner **or impermeable membrane-backed geosynthetic clay liner**, in lieu of a constructed soil liner.

(g) Each new industrial wastewater lagoon utilized for the containment or treatment of industrial process wastewater shall utilize an impermeable synthetic membrane liner system with a maximum synthetic membrane liner leakage rate **or impermeable membrane-backed geosynthetic clay liner system with a maximum membrane-backed geosynthetic clay liner leakage rate**.

Note: (g) (1) and (2) can be dropped because maximum synthetic membrane liner leakage rate and maximum membrane-backed geosynthetic clay liner leakage rate have already been defined in 28-16-160.

28-16-166. Requirements for impermeable synthetic membrane liners and impermeable membrane-backed geosynthetic clay liners in municipal or commercial wastewater treatment system lagoons.

Amend title as shown above and add new (b) as follows. Note that UV resistance is substituted with requirement for minimum of 12" cover material.

(b) The following requirements shall apply to municipal or commercial impermeable membrane-backed geosynthetic clay liners:

(1) The liner shall be at least 0.25 inch in thickness.

(2) The liner shall be covered with a minimum 12 inches of soil cover.

(3) The engineer designing the wastewater lagoon shall obtain a certification from the liner manufacturer that includes the following:

(A) Confirmation that the specified liner is compatible for use with the proposed wastewater to be retained or treated; and

(B) the manufacturer's estimated leakage, permeability, or transmissivity rate of the specified liner expressed in units of volume per area per time (gallons per acre per day) for a properly installed liner. The leakage, permeability, or transmissivity rate shall reflect the expected rate of movement of fluids through a membrane-backed geosynthetic clay liner when considering the properties of the liner material, liner thickness, normally expected manufacturing defects in the liner material, and normally expected defects associated with the seaming and installation process.

(b) through (i) become (c) through (j). Add to (j) the following.

(j)(1)(B) the integrity of the impermeable synthetic membrane liner or impermeable membrane-backed geosynthetic clay liner.

28-16-167. Requirements for impermeable synthetic membrane liners and impermeable membrane-backed geosynthetic clay liners in industrial wastewater treatment system lagoons.

Amend title as shown above and add (b) as follows.

(b) The following requirements shall apply to industrial impermeable membrane-backed geosynthetic clay liners:

(1) The impermeable membrane-backed geosynthetic clay liner system shall be comprised of primary and secondary impermeable membrane-backed geosynthetic clay liners with an intermediate leak detection system provided.

(2) The liner shall be at least 0.25 inch in thickness.

(3) The liner shall be covered with a minimum 12 inches of soil cover.

(4) The engineer designing the wastewater lagoon shall obtain a certification from the liner manufacturer that includes the following:

(A) Confirmation that the specified liner is compatible for use with the proposed wastewater to be retained or treated; and

(B) the manufacturer's estimated leakage, permeability, or transmissivity rate of the specified liner expressed in units of volume per area per time (gallons per acre per day) for a properly installed liner. The leakage, permeability, or transmissivity rate shall reflect the expected rate of movement of fluids through a membrane-backed geosynthetic clay liner when considering the properties of the liner material, liner thickness, normally expected manufacturing defects in the liner material, and normally expected defects associated with the seaming and installation process.

28-16-168. Postconstruction testing of municipal, commercial and industrial impermeable synthetic membrane liners and impermeable membrane-backed geosynthetic clay liners.

Amend title as shown above. Add "or impermeable membrane-backed geosynthetic clay liner" after "impermeable synthetic membrane liner" in (a), (c) and (d) and "or maximum synthetic

membrane-backed geosynthetic clay liner leakage rate” after “maximum membrane liner leakage rate” in (a).

28-16-173. Municipal, commercial and industrial wastewater lagoons; closure requirements.

Add “or impermeable membrane-backed geosynthetic clay liner” after “impermeable synthetic membrane liner” in (d)(2) and (d)(5).

Thank you for your consideration of our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "J. T. Olsta". The signature is written in a cursive, flowing style.

James T. Olsta
CETCO
Lining Technologies Group
1500 W. Shure Dr.
Arlington Heights, IL 60004
e-mail: jim.olsta@cetco.com



GCL Performance & Design Reference

GCL USE IN ALTERNATIVE LINER SYSTEMS OF DOUBLE-LINED LANDFILLS

Since their inception in the 1980s, GCLs have been used in the upper composite of double liner systems with leak detection in a number of landfills. Twelve states require double liner systems for municipal solid waste landfills (MSWLFs) (Koerner, et. al., 1998). The GCL component of the composite liner is often considered to be an alternate to the regulated low permeability compacted soil (or compacted clay liner, i.e., CCL) per 40 CFR 25.8.28(a)(2). This regulation calls for the CCL to be at least 2-ft thick with a permeability of 1×10^{-7} cm/sec, or less. The alternate, in this case GCL, must be equivalent, or superior, in its performance to the CCL.

The underlying leak detection system allows for an assessment of the upper liner's performance. A major study has just been completed for the USEPA, which includes 91 landfills containing 287 single or multiple cells (Bonaparte, et. al., 1999). Three different types of primary liners were involved (GM alone, GM/CCL and GM/GCL) and two types of leak detection materials (sand and geonet). Thus six combinations are available, as shown in Table 1. Data is also available for three different stages during the life of the respective landfill cells (initial, active and post closure).

Table 1 – Leakage Rates from Leak Detection Systems of Double-Lined Landfills (Bonaparte, et. al., 1999)

[All Flow Rates are in Gal/Acre-day (gpad)]

Liner/LDS Type	Type I (GM-Sand)			Type II (GM-GN)			Type III (GM/CCL-Sand)		
	1	2	3	1	2	3	1	2	3
Average Flow	41	18	6.8	10	11	ND	23	15	6.8
Minimum Flow	0.81	0.0	0.02	0.51	0.15	ND	0.13	2.4	0.0
Maximum Flow	229	158	26	40	38	ND	126	71	29
No. of "points"	30	32	8	7	11	ND	31	41	15
No. of landfills	11	11	4	4	6	ND	11	11	4

Life Cycle Stage: "points" = Number of measuring points (i.e., outlets of single or multiple cells)

Stage 1 – Initial Life

• Stage 2 – Active Life

Stage 3 – Post Closure

ND = No Detection (of leakage)

Table 1, Continued – Leakage Rates from Leak Detection Systems
of Double-Lined Landfills (Bonaparte, et. al., 1999)

[All Flow Rates are in Gal/Acre-day (gpad)]

Liner/LDS Type	Type IV (GM/CCL-GN)			Type V (GM/GCL-Sand)			Type VI (GM/GCL-GN)		
	1	2	3	1	2	3	1	2	3
Average Flow	18	8.9	7.0	14	2.38	0.03	0.70	0.28	ND
Minimum Flow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ND
Maximum Flow	74	54	14	104	30	0.10	3.6	1.0	ND
No. of "points"	21	27	12	19	19	4	6	4	ND
No. of landfills	6	9	3	3	3	1	2	2	ND

Life Cycle Stage: "points" = Number of measuring points (i.e., outlets of single or multiple cells)

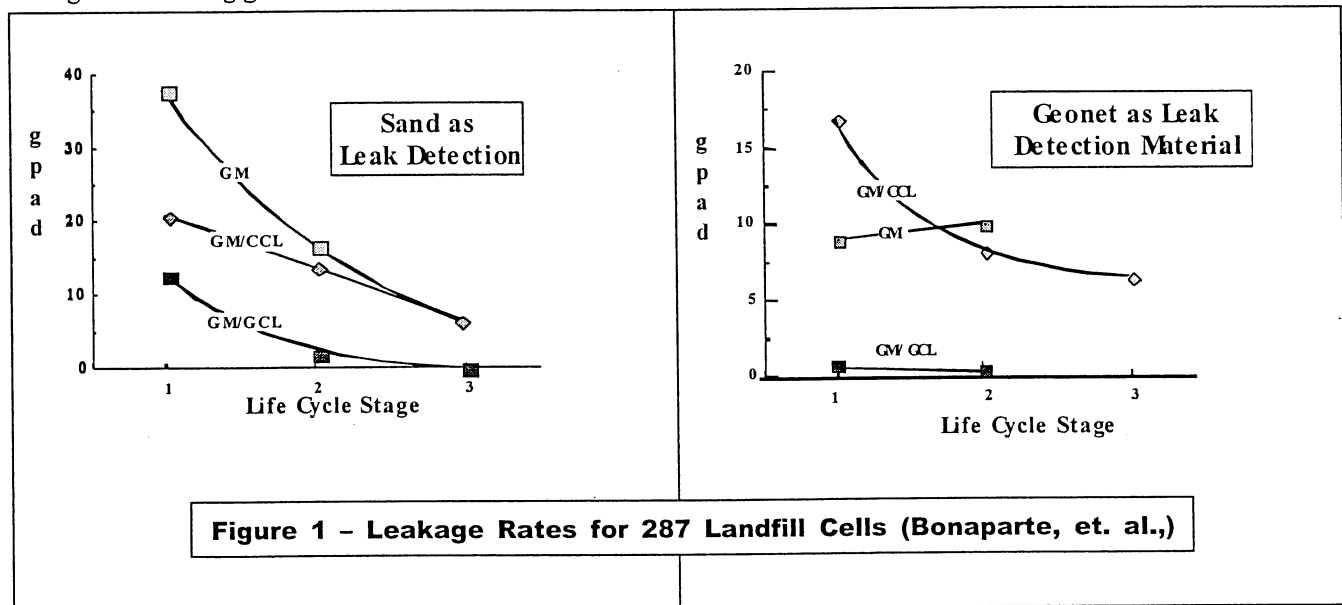
Stage 1 – Initial Life

Stage 2 – Active Life

Stage 3 – Post Closure

ND = No Detection (of leakage)

The above data is plotted in Figure 1 (for the average flow rates) so as to give a graphic representation as to the effectiveness of the GM/GCL alternate barrier system. Note that the plotted data represents the average flow rates of 287 single or multiple cells monitored for up to 10 years. Readily seen is that the alternate GM/GCL outperforms the standard GM/CCL in all cases and at every life cycle stage. Clearly, the GCLs have a significant influence in reducing leakage through the covering geomembranes.



CONCLUSION

In 1991, when the original EPA regulation on MSWLF liners [40 CFR 258.28 (a)(2)] was promulgated, GCLs were in their infancy. Today, GCLs have been shown to be superior to CCLs in composite liner systems of every common configuration. Based on the results of the Bonaparte study, it can be concluded that a GM/GCL composite liner system defines the current state of the art for minimizing landfill liner leakage.

REFERENCES

Bonaparte, R., Daniel, D. E. and Koerner, R. M., Assessment and Recommendations for Optimal Performance of Waste Containment Systems, EPA/600/R-02/099, December 2002, U. S. EPA, ORD, Cincinnati, OH, www.epa.gov/ORD/NRMRL/Pubs/600R02099/600R02099.pdf.

Flux (leakage) Through Membrane-Backed GCL			
	$Q/A = k \cdot i$		
10 foot deep			
Bentomat CL or CLT			bottom
	k (cm/sec)		5.0E-10
	thickness (cm)		0.64
	head (cm)		304.8
	hydraulic gradient		481
	flux (m3/m2/sec)		2.4E-09
	flux (gal/acre/day)		222
	leakage (in/day)		0.008

Flux (leakage) Through Compacted Clay Liner and GCCLs					
	Q/A = k * i	i = hydraulic gradient = (head + thickness)/thickness			
65 foot deep reservoir		average			average
2' CCL @ 10-7 cm/s		sideslopes		bottom	total
	k (cm/sec)	*****	k (cm/sec)	*****	
	thickness (cm)	76.20	thickness (cm)	76.20	
	head (cm)	990.6	head (cm)	1981.2	
	hydraulic gradient	14	hydraulic gradient	27	
	flux (m3/m2/sec)	*****	flux (m3/m2/sec)	*****	
	flux (gal/acre/day)	1291	flux (gal/acre/day)	2491	1891
65 foot deep reservoir		average			average
Bentomat CL or CLT on side		sideslopes		bottom	total
Claymax 600CL on bottom	k (cm/sec)	*****	k (cm/sec)	*****	
	thickness (cm)	0.70	thickness (cm)	0.70	
	head (cm)	990.6	head (cm)	1981.2	
	hydraulic gradient	1416.14	hydraulic gradient	2831.29	
	flux (m3/m2/sec)	*****	flux (m3/m2/sec)	*****	
	flux (gal/acre/day)	653	flux (gal/acre/day)	1306	980

(1)

RECEIVED

AUG 31 2004

Kansas Department of Health & Environment BUREAU OF WATER

Dorothy Treisler,

After attending the last K D H E.
hearing of Aug. 26 in Wichita, Ks.

I have to agree with the changing
middle for the lagoon & industrial
lines and the requirements, But there
is not one word in these regulations
about septic tanks. Septic tanks
pollute forever. No more septic
tanks on the equus led. Please
on housing developments unless on city
water & sewer. This is sandy soil
at Bentley & near Halstead & Mt Hope.
& Andale & Maize. Bentley & Halstead
is in the middle of the equus led.
Our loved ones & neighbors are getting
sick ^{because of} ~~with~~ this pollution. Too many
are getting sick to be coincidental.
If you read 2004 Chemical Weed Control
for Field Crops, Pastures, Rangeland,
& non cropland from your Extension
Service, you will understand why I
am concerned. Read it. It will scare
you, when you think about how many
tons of ~~this stuff~~ these products have
been put on our ground. Everything
we put on or in our soil, when water is
applied from rain or irrigation, goes into
our drinking water.

over

Bentley has a population of 450 people. There are 7 with parkinsons, 10 with cancer & 4 with alzheimers & 3 with muscular De Graffis. That is alarming to have that many sick in a small community that sits in the middle of the Ogum beds aquifer. We need to protect and I mean protect this aquifer now.

Young children are getting brain cancer. All these diseases are not curable.

Water pollution does not discriminate.

If you don't want to take my word.

~~for~~ write to Mike Dealy of ~~Holbrook~~

Halstead, KS. He has the data on all these wells. I can tell you the Ogum beds is polluted. Our water has oil film on it. And herbicide is diluted with vegetable oil. It tells in the herbicide books. It also says, do not pollute the drinking water or near by lakes. Some herbicides are diluted with water but most are diluted with ~~oil~~ oil.

I have suggestions for farmers & private home owners. Our legislators, governor & all farm related people should be talking to these chemical companies to see if there is a product they can use ^{make or} without polluting the water. Since all plants have to ^{have} sun & water, ~~using these~~ maybe they could come up with something not harmful.

To the water system. Also home ~~own~~ owners can get a hoe & some elbow grease, manual labor. Stop using herbicide altogether. We spray everything & that's Bad. Multiply 1 can of poisonist spray X 1000,000 people. Devastating.

Our air, & land is important too, And we need our farmers. Farmers do not have a choice right now. Gasoline is almost \$2.00 a gal and diesel is right under that price. I would like for them to stop using herbicide - but they no choice.

Our water is our most precious ~~resource~~ resource, now & for the future. Too many are getting cancer, parkinsons, alzheimers, & a host of other incurable diseases. All not curable. Here are a few things I would do if I were K.D.H.E..

1. Stop using herbicide & insecticides
2. ~~Start~~ Put all new housing on city & sewer & water.
3. Stop using lead sinkers for fishing.
4. Stop using gasoline engine boats.
(Some countries only allow battery operated)
(which is good)
5. Stop polluting ~~with~~ trash, tires & paper & our rivers and streams with trash & oil.
6. Start talking to the Chemicals consumers

(4)

to see if they can make a product
~~that would do~~ ~~help~~ for the farmers.
and do the job, but not harm the
ground water. It's not just farmers.
that are polluting, it is all of us.

~~We need clean water~~

7. Teach our school children 1st to 8th
grades. (Mandatory) about how ~~to~~
protect our precious resources.
These kids are our future.

8. Don't put city dumps or ~~large~~ ^{large} city
sewers on the aquifer beds. It would
be disastrous.

Herbicides & septic tanks are really bad
polluters. We need to stop polluting.

We ~~now~~ need a state law to protect
our water resource soon.

Very Concerned,

Bessie Black

Sorry, no type writer or computer.

KANSAS
ASSOCIATION



OF
SCHOOL
BOARDS

1420 SW Arrowhead Road • Topeka, Kansas 66604-4024
785-273-3600

May 24, 2004

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MAY 26 2004

BUREAU OF WATER

Donald R. Carlson, P.E.
KS Dept. of Health and Environment
Bureau of Water – Industrial Programs Section
1000 SW Jackson, Suite 420
Topeka, Kansas 66612-1367

Re: Regulations for Wastewater Lagoons

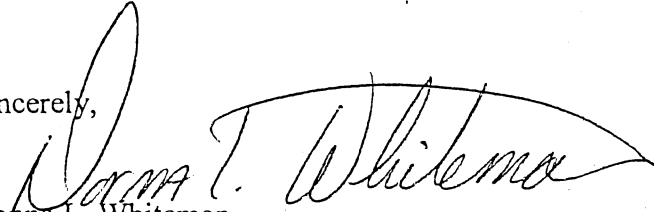
Dear Mr. Carlson:

We have received a copy of the proposed regulations regarding construction, operation, and closure of wastewater lagoons serving municipal, commercial, and industrial facilities.

Thank you for the opportunity to review the proposed regulations. Initially, it does not appear that these regulations will have a direct effect on Kansas school districts. However, additional fee increases result in a burden on Kansas school districts as inflationary costs increase and legislative funding for education decreases.

Thank you for bringing these proposed changes to our attention. If you have any questions please contact me at (785) 273-3600.

Sincerely,


Donna L. Whiteman
Assistant Executive Director/Attorney